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SEPARATOR APPARATUS

107.04
This application claims benefit of Provisional App. 60/107420 filed Nov. 6, 1998.

Background of the invention

The invention is directed to a separator apparatus for separating solids from a gas-solid containing feed resulting in a gas-rich stream, the separator comprising:

5 an upright hollow circular housing fluidly connected to a dipleg for discharging solids positioned below the housing;

a gas outlet tube for discharging the gas-rich stream from the circular housing, which outlet tube protrudes substantially co-axial from the top of the housing;

inlet means for the gas-solids feed so arranged to create, in use, a vortex flow in the circular housing.

Such an apparatus is described in US-A-5391289. This patent publication describes a cyclone separator which is used as a secondary separation step to separate solid catalyst particles from the reactor effluent of a fluid catalytic cracking (FCC) reactor. In a FCC process hydrocarbons are cracked at high temperature in the presence of a solid catalyst to more desired components, for example gasoline and lower olefins. In the field of FCC these cyclone separators are also referred to as secondary cyclones. Other publications describing these secondary cyclones in a FCC process are for example US-A-5055177, US-A-5376339, EP-A-299650, EP-A-488549 and EP-A-309244.

A disadvantage of these secondary cyclones is that coke deposit may form on the walls of these apparatuses. Coke forming is a result of the hydrocarbons present in the feed to the cyclone and the relatively high temperatures of the gasses fed to the cyclones. Large pieces of coke can fall from the wall into the dipleg and